

S.N. 09/976,564
ATTY DOCKET NO. 13DV14147

AMENDMENTS TO THE CLAIMS

Claim 1. (Original) A method for removing metal cladding adhered to an airfoil wherein the airfoil comprises a substrate and wherein at least a portion of the cladding is adhered to at least one surface of the substrate of the airfoil, the method comprising the step of treating the cladding with a chemical etchant of the metal that the cladding is made of for a period of time sufficient to remove at least the portion of the cladding adhered to the at least one surface of the substrate, the substrate being made of a material that is chemically resistant to the etchant.

Claim 2. (Original) The method of claim 1 wherein the chemical etchant is an aqueous etchant solution comprising at least one strong acid.

Claim 3. (Original) The method of claim 2 wherein the strong acid is selected from the group consisting of hydrofluoric acid, nitric acid, hydrochloric acid, sulfuric acid, and mixtures thereof.

Claim 4. (Original) The method of claim 3 wherein the cladding is made of titanium or a titanium alloy, and wherein the strong acid is hydrofluoric acid.

Claim 5. (Original) The method of claim 2 wherein the treatment step comprises flowing the aqueous etchant solution onto the cladding in a continuous manner until the cladding has been removed from the at least one surface of the substrate.


Claim 6. (Currently Amended) The method of claim 1 wherein the cladding is positioned along an edge of the blade and wherein the cladding positioned along the edge of the blade is treated with the etchant to remove at least the portion of the adhered cladding from the substrate along the one edge of the airfoil.

Claim 7. (Original) The method of claim 6 wherein the cladding has at least one interior section and a perimeter section and wherein the cladding increases in thickness in the direction from the at least one interior section to the perimeter section.

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Claim 8. (Currently Amended) The method of claim 7 wherein the at least one interior section has a thickness of from about 2 to about 10 mils (from about ~~0.051~~ 0.051 to about ~~0.25mm~~ 0.25 mm) and wherein the perimeter section has a thickness from about 60 to about 75 mils (from about 1.52 to about 1.91 mm).

Claim 9. (Original) The method of claim 8 wherein the at least one interior section is adhered to the at least one surface of the substrate and wherein the cladding is treated with the chemical etchant until the at least one interior section is removed from the at least one surface.

 Claim 10. (Original) The method of claim 8 wherein the at least one interior section of the cladding is treated with the chemical etchant for a period of from about 2 to about 15 minutes.

Claim 11. (Original) The method claim 9 wherein the airfoil has a convex side and a concave side and wherein the substrate comprises two surfaces, one surface of the substrate being on the convex side, the other surface of the substrate being on the concave side, and wherein the at least one interior section comprises two interior sections, one interior section being adhered to one surface of the substrate, the other interior section being adhered to the other surface of the substrate.

Claim 12. (Original) The method of claim 5 wherein the edge of the airfoil is the leading edge.

Claim 13. (Original) The method of claim 1 wherein the airfoil is a turbine fan blade.

Claim 14. (Currently Amended) A method for removing metal cladding adhered to a turbine fan blade, wherein the blade has convex side and a concave side and comprises a substrate having two surfaces, one surface of the substrate being on the convex side, the other surface of the substrate being on the concave side, and wherein the cladding is positioned along one edge of the blade, the cladding comprising two interior sections and a perimeter section, each interior section being adhered to one surface of the substrate,

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the method comprising the step of treating the cladding positioned along the edge of the airfoil with a chemical etchant of the metal that the cladding is made of for a period of time sufficient to remove the interior sections adhered to the surfaces of the substrate, the substrate being made of a material that is chemically resistant to the etchant.

Claim 15. (Original) The method of claim 14 wherein the chemical etchant is an aqueous etchant solution comprising at least one strong acid.

Claim 16. (Original) The method of claim 15 wherein the strong acid is selected from the group consisting of hydrofluoric acid, nitric acid, hydrochloric acid, sulfuric acid, and mixtures thereof.

Claim 17. (Original) The method of claim 16 wherein the cladding is made of titanium or a titanium alloy, and wherein the strong acid is hydrofluoric acid.

Claim 18. (Original) The method of claim 17 wherein the treatment step comprises flowing the aqueous etchant solution onto at least the interior sections of the cladding in a continuous manner until the interior sections of the cladding have been removed from the surfaces of the substrate.

Claim 19. (Original) The method claim 18 wherein the cladding increases in thickness in the direction from the interior sections to the perimeter section.

Claim 20. (Original) The method of claim 19 wherein each interior section has a thickness of from about 3 to about 8 mils (from about 0.076 to about 0.20 mm) and wherein the perimeter section has a thickness from about 65 to about 70 mils (from about 1.65 to about 1.78 mm) and wherein the interior sections of the cladding are treated with the aqueous etchant solution for a period of from about 3 to about 12 minutes.

Claim 21 (Original) The method of claim 20 wherein the edge of the blade is the leading edge.

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Claim 22. (New) A method for removing metal cladding adhered to an airfoil wherein the airfoil comprises a substrate and wherein at least a portion of the cladding is adhered to at least one surface of the substrate of the airfoil and wherein the substrate comprises a composite material selected from the group consisting of metallic composites and nonmetallic composites, the method comprising the step of treating the cladding with a chemical etchant of the metal that the cladding is made of for a period of time sufficient to remove at least the portion of the cladding adhered to the at least one surface of the substrate, the substrate being made of a material that is chemically resistant to the etchant.

Claim 23 (New) The method of claim 22 wherein the substrate is a nonmetallic composite.

Claim 24 (New) The method of claim 23 wherein the cladding is positioned along one edge of the airfoil and wherein the cladding positioned along the edge of the blade is treated with the etchant to remove at least the portion of the adhered cladding from the substrate along the one edge of the airfoil.
